

IN THE CLAIMS

1. (Currently amended) A method for forming a SOI structure,
comprising:

providing a silicon substrate and a support substrate having a first surface and a second surface;

implanting an impurity into said silicon substrate to a first depth;

bonding said silicon substrate to said support substrate, wherein said impurity is adjacent to said first surface of said support substrate;

flashing said support substrate with radiation energy which is directional and impinges on a the second surface of said support substrate for a substantially instantaneous time to go through said support substrate toward the first surface and heat the first depth of said silicon substrate to an annealing temperature.
2. (Original) The method of Claim 1, wherein said radiation energy is derived from a radiation energy source comprising a high-intensity lamp.
3. (Original) The method of Claim 2, wherein said high-intensity lamp comprises a Xe arc lamp.
4. (Original) The method of Claim 1, wherein said support substrate comprises quartz.
5. (Original) The method of Claim 1, wherein said radiation energy comprises an average power of between about 0.5 J/cm² and about 100 J/cm².

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6. (Original) The method of Claim 1, wherein said first depth comprises a portion of said silicon substrate between 10 nm and about 1 mm below a surface of said silicon substrate.

7. (Original) The method of Claim 1, wherein said annealing temperature is between about 500 °C and 1400 °C.

8. (Original) The method of Claim 1, wherein said substantially instantaneous time is between about 1 nanosecond and about 10 seconds.

9. (Currently amended) A method for forming an SOI structure,
comprising:

providing a first substrate and a second substrate;

applying a layer of SiO₂ to said first substrate;

implanting an impurity through said layer of SiO₂ into said first
substrate to a first depth;

bonding said first substrate to a first surface of said second substrate
with said layer of SiO₂ disposed therebetween; and

flashing, directionally, an opposing second surface of said second substrate
~~said first depth~~ to heat said first depth to an annealing temperature.

10. (Original) The method of Claim 9, wherein said flashing comprises energizing
a high-intensity lamp for a substantially instantaneous time.

11. (Original) The method of Claim 10, wherein said substantially instantaneous time is between about 1 nanosecond and about 10 seconds.

12. (Original) The method of Claim 9, wherein said second substrate comprises quartz.

13. (Original) The method of Claim 9, wherein said second substrate comprises SiC, GaAs, GaP, InP, GaN, and Al₂O₃.

14. (Original) The method of Claim 9, wherein said first depth comprises a portion of said first substrate between 10 nm and about 1 mm below a surface of said silicon substrate.

15. (Original) The method of Claim 9, wherein said annealing temperature is between about 500 °C and 1400 °C.

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